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INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

REC'D 08 JUL 2003

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Applicant's or agent's file reference LU6001/CB		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP02/14379	International filing date (day/month/year) 17.12.2002	Priority date (day/month/year) 08.01.2002	
International Patent Classification (IPC) or both national classification and IPC C07F17/00			
Applicant BASELL POLYOLEFINE GMBH et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 3 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand  03.04.2003		Date of completion of this report  04.07.2003	
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer  Bork, A-M  Telephone No. +49 89 2399-8311  	

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP02/14379

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-10 as originally filed

**Claims, Numbers**

1-7 filed with the letter of 16.06.2003

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☒ the claims, Nos.: 8  
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY  
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International application No. **PCT/EP02/14379**

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-7
	No: Claims	
Inventive step (IS)	Yes: Claims	1-7
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-7
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**Re Item I**

**Basis of the report**

Amended claims 1-7 filed with letter of 16.06.2003 meet the requirements of Art. 34(2)(b) PCT.

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

- D1: JOURNAL OF ORGANOMETALLIC CHEMISTRY, vol. 535, 1997, pg. 29-32
- D2: US-A-5 276 208
- D3: WO-A-00 31091

The present application concerns a process for the racemoselective preparation of silicon-bridged dialkyl-ansa-metallocenes as defined in claim 1 (claims 2-6) and the use of a transitional metal dialkyl compound of formula (III) in the said process (claim 7).

**1. Novelty**

D1 (see page 29, right-hand column and page 32, paragraph 3.10) discloses the preparation of  $[\text{Me}_2\text{Si}]$  ansa-zirconocene dimethyl complexes by the reaction between an ansa-ligand  $(\text{Me}_2\text{Si}(\text{Ind})_2)$  and pre-dimethylated  $\text{Me}_2\text{ZrCl}_2$ . In the said process a diastereomeric mixture is obtained with the ratio rac:meso = 1:2.

D2 (see column 12, lines 39-49) discloses the preparation of rac-dialkyl-metallocenes starting from rac-metallocene dichlorides and lithium alkyl compounds, where the chloride ligands of the transition metal are replaced by the alkyl radicals.

D3 (see examples 3, 6) discloses a process for the racemoselective preparation of halo monoaryloxy metallocenes, characterised in that a transition metal haloaryloxy compound reacts with an ansa-ligand having an alkyl substituent in the 2 position of the indenyl rings. The racemoselectivity is achieved through the use of the transition metal haloaryloxy compound.

In view of documents D1-D3 the subject-matter of claims 1-8 is considered to meet the requirements of Art. 33(2) PCT.

## **2. Inventive Step**

D1 is to be considered as the most relevant prior art.

From D1 the subject-matter of the present application is distinguished by the use of an ansa ligand starting compound having a C<sub>1</sub>-C<sub>40</sub> substituent in the 2 position of the cyclopentadienyl rings.

With regard to the content of D1 the technical problem to be solved by the present application may be seen as the provision of an alternative process for the racemoselective preparation of silicon-bridged dialkyl-ansa-metallocenes.

This problem has been solved by the process according to claim 1, process in which the racemoselectivity is achieved by the substitution of the ansa ligand in the 2 position of the cyclopentadienyl rings.

Since the solution of the technical problem is not suggested in the prior art, the subject-matter of the present application meet the requirements of Art. 33(3) PCT.

## **Other matters**

In claim 4 reference is made to a compound of formula (V), a compound which does not appear anywhere in the description or in the claims. Corrections should be made.